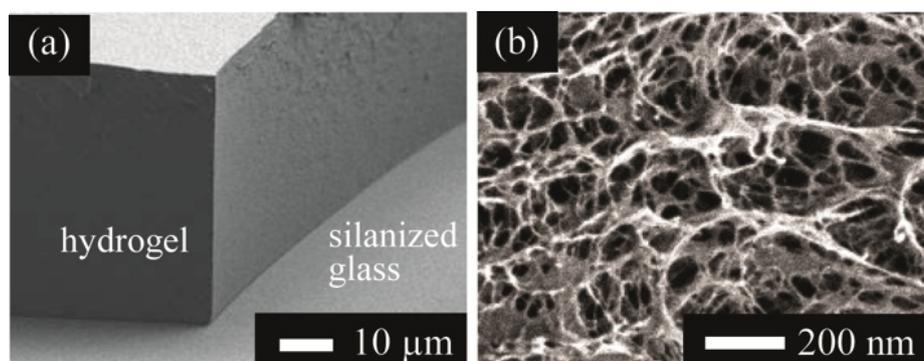
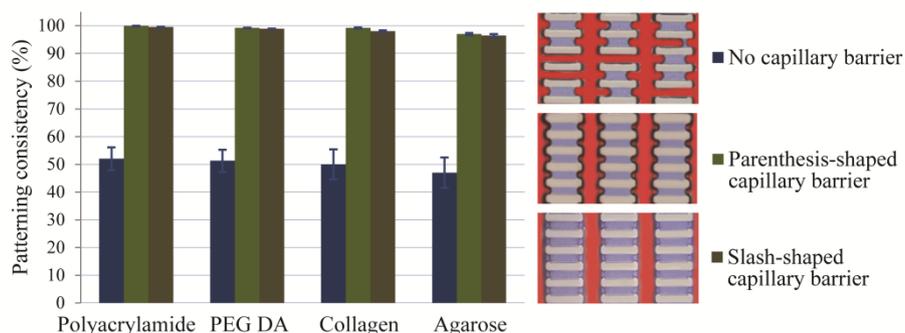


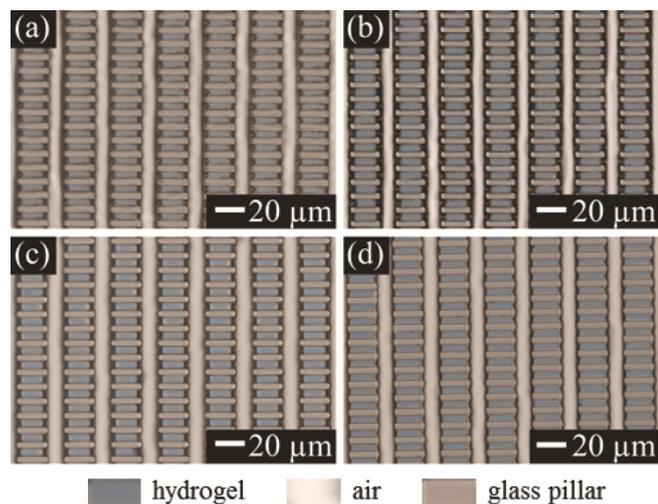
## Supplementary Information



**Figure S1.** SEM images of (a) hydrogel attachment to the glass surface (polyacrylamide was photopolymerized without top glass plate); (b) pore size distribution of freeze-dried polyacrylamide.



**Figure S2.** Comparison of the patterning consistency of microchips with no barriers, parenthesis shaped barriers and slash shaped barriers for polyacrylamide, PEG DA, collagen and agarose hydrogels. The images on the right present the patterning overviews of devices with no, parenthesis shaped, and slash shaped capillary barriers (the images are artificially colored on the basis of gray scale differences).



**Figure S3.** Phase contrast microscopy images of (a) polyacrylamide; (b) PEG DA; (c) collagen; (d) agarose hydrogels patterns (the images are artificially colored on the basis of gray-scale differences).

Barrier type	Patterning consistency (%)			
	Polyacrylamide	PEG DA	Collagen	Agarose
No capillary barrier	24±4.1	23.2±4	21±5.4	19±5.5
Parenthesis-shaped capillary barrier	99.7±0.2	99.2±0.2	99.2±0.2	97±0.6
Slash-shaped capillary barrier	99.5±0.2	98.9±0.4	98±0.3	96.4±0.8

**Table S1.** Comparison of the patterning consistency of microchips with no barriers, parenthesis-shaped barriers and slash-shaped barriers for polyacrylamide, PEG DA, collagen and agarose hydrogels.